

Exploring Barriers to Accessing Evidence and Federal Resources for Equitable Green Infrastructure Implementation with States and Municipalities

The American Association for the Advancement of Science's Center for Scientific Evidence in Public Issues (AAAS EPI Center), in partnership with the Environmental Council of the States (ECOS) and the US Environmental Protection Agency (EPA) Office of Water, hosted the second discussion in a two-part series "Exploring Barriers to Accessing Evidence and Federal Resources for Equitable Green Infrastructure Implementation." The panelists shared their perspectives and highlighted opportunities, challenges, barriers, and lessons-learned throughout the design and planning, implementation, and operations and maintenance of green infrastructure and nature-based solutions for states and municipalities.

The [first webinar](#) of the series covered similar themes in discussion with NGOs and communities. For more information, contact the AAAS EPI Center.

The discussion focused on leveraging evidence, expertise, and tools for advancing resiliency; accessing and utilizing federal funding sources; and centering equity and the needs of frontline communities. The event was attended by representatives of 12 federal agencies, universities, state agencies, philanthropies, and NGOs.

Panelists

- **Lori Beary**, Former Community Development Director and State Revolving Fund Coordinator, Iowa Finance Authority
- **Felicia Marcus**, William C. Landreth Visiting Fellow, Stanford University's Water in the West Program; Founding Member, Water Policy Group; Fellow, National Academy of Public Administration
- **Tancred Miller**, Policy and Planning Section Chief, Division of Coastal Management, North Carolina Department of Environmental Quality (NCDEQ)
- **Bhaskaran Subramanian**, Program Manager, Climate Program Office - Adaptation Science (AdSci), National Oceanic and Atmospheric Administration (NOAA); former Chief of Shoreline Conservation Service, Maryland Department of Natural Resources
- **Mackenzie Todd**, Coastal Resilience Specialist, Division of Coastal Management, North Carolina Department of Environmental Quality (NCDEQ)

The following summarizes the information panelists presented during the virtual discussion as well as key resources shared.

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“There really needs to be some attention paid to honing in on what is that best bang for the buck, cutting through some of that clutter and clearing out for the practitioners, folks on the ground all the extra stuff that they don't necessarily need to focus on.” **-TANCRÉD MILLER**

KEY ISSUES EMERGED FROM THE DISCUSSION

Theme 1: Leveraging Evidence, Expertise, and Tools for Advancing Resiliency

The panelists' opening remarks highlighted the need to make information, data, and tools on green infrastructure and nature-based solutions readily available and understandable. They emphasized the need for tools to include appropriate context and caveats so that the data are not misrepresented or misused when presented to the public. The discussion focused on how to communicate data and case studies around green infrastructure and nature-based solutions to the public to demonstrate the benefits from the featured projects and to share lessons learned.

The panelists agreed that additional training and guidance on tools for planning and implementing green infrastructure and nature-based solutions are critical to assist smaller communities that may lack dedicated funding and in-house expertise. Expanding training on these tools could help bridge the gap between under-resourced communities and those with more staff and capacity. In addition, for those understaffed communities, panelists discussed the need for streamlining the permitting process, at the local, state, and federal levels for green infrastructure and nature-based solutions, which can traditionally be discouraging for applicants due to inconsistency and the time required to obtain the permit.

The panelists suggested an agency staff member act as a "champion" for communities. This champion could serve as a liaison between the community and state and federal agencies, connect them to planning efforts and available resources, and help them identify funding opportunities.

"Each case study is this miracle of somebody realizing they could do more for the community working together than keeping within their comfort zone." –FELICIA MARCUS



"When [another state] is doing something really well we're more than willing to use what they do, tweak it..., and use it in such a way that it works for us." –LORI BEARY

"I would love to see any kind of help we could get in grant writing... for smaller communities that have limited funding, limited staff, and these amazing grant opportunities are coming down the pipeline but it's so overwhelming for them to [complete]." –MACKENZIE TODD

Topic 2: Accessing and Utilizing Federal Funding Sources

Navigating the federal funding process is one of the most critical steps when planning and implementing green infrastructure and nature-based solutions. Panelists explained that small communities need support from the federal government and other organizations when navigating the federal funding process, including grant writing, understanding the timing and requirements of grants, applying for funding from multiple federal agencies, and strategizing what grants to use to best fund community-specific needs in green infrastructure and nature-based solutions. Panelists highlighted the State Revolving Fund (SRF) as a particularly flexible source of funding for states for a variety of projects, including green infrastructure and nature-based solutions. The panelists also described the benefits of combining multiple federal funding sources for a single project. Panelists made clear that agencies have their own missions and purviews, and each is best suited for funding in a certain situation. They also suggested that when the federal agencies work together, communities are better equipped to figure out the best funding options to meet their needs. The panelists then discussed certain challenges with funding, specifically related to hazard mitigation and emergency funding. In these cases, federal agencies' requirements for funding may make it difficult to obtain funding from multiple agencies.

The panelists emphasized the importance of sharing lessons learned and program successes around green infrastructure and nature-based solutions across states. Panelists provided examples of how states can and have learned from one another and, having recognized what works well for another state, adapted a similar framework to meet their own needs.

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Additionally, panelists discussed prioritizing funding for ongoing operations and maintenance efforts for green infrastructure and nature-based solutions. Operations and maintenance are a key aspect of ensuring the longevity and success of these projects. At present, many communities and states are responsible for operations and maintenance expenses. Additional federal funding for operations and maintenance, as well as funding for workforce development and training would provide needed sustained support for long-term planning and implementation efforts across the country.

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“States hope to achieve two things: resilient and vibrant communities and having a robust economic base.” –**BHASKARAN SUBRAMANIAN**

“Invest in allowing your people to show up and listen first and then figure out how they can add value to what the community wants and needs.”
–**FELICIA MARCUS**

Theme 3: Centering Equity and the Needs of Frontline Communities

Throughout the discussion, panelists reiterated the need for states and municipalities to build trust while working with frontline communities. Panelists highlighted the importance of listening to a community's needs to support their efforts when planning and implementing green infrastructure and nature-based solutions. Panelists suggested that state and municipal agencies be adaptable to ensure a community's individualized needs are being met. Incorporating community development goals into green infrastructure and nature-based solutions projects can help ensure that projects align with the community's needs and vision for the future, especially regarding employment and housing. Panelists discussed the importance of building a diverse workforce in green infrastructure and nature-based solutions to establish connections and establish trust with frontline communities. Additionally, panelists recommended using case studies to demonstrate the benefits of green infrastructure and nature-based solutions to help reduce hesitation within communities unsure about alternative water management options. Developing a community action team with community leaders, religious leaders, and residents can ensure community members are involved in the planning and implementation of green infrastructure and nature-based solutions, as well as provide an opportunity to disseminate information on these projects to the broader community.

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RESOURCES SHARED

BACKGROUND INFORMATION AND TOOLS

- [Cover Crop Innovators Video Series](#)
Sustainable Agriculture Research and Education (SARE)
- [Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities](#)
Federal Emergency Management Agency (FEMA) (2021)

CASE STUDIES

- [Banking on Soil Health](#) Dee Anne Littlefield, USDA (2019)
- [Bee Branch Creek Greenway](#) City of Dubuque Iowa
- [Beavers and Wildfire: a stop-motion story by Emily Fairfax](#) YouTube (2019)
- [Cover Crop Interseeding for Clean Water in Northeast Kansas](#)
Clean Water State Revolving Fund (2020)
- [Wetlands stopped \\$625 million in property damage during Hurricane Sandy. Can they help Houston?](#)
Nsikan Akpan, PBS News Hour (2017)

EQUITY

- [Equity Guide for Green Stormwater Infrastructure Practitioners](#) The Green Infrastructure Leadership Exchange and GreenPrint (2022)

FUNDING/FEDERAL RESOURCES

- [Green Infrastructure Funding Opportunities](#)
Environmental Protection Agency (EPA)
- [National Coastal Resilience Fund](#)
National Fish and Wildlife Foundation (NFWF)
- [Promoting Nature-Based Hazard Mitigation Through FEMA Mitigation Grants](#)
The Nature Conservancy (2021)
- [Small Watershed Grants 2022 Request for Proposals](#)
National Fish and Wildlife Foundation (NFWF)

Meeting Organizers



AAAS Center for Scientific Evidence in Public Issues

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The **Center for Scientific Evidence in Public Issues (AAAS EPI Center)** is an initiative from the American Association for the Advancement of Science (AAAS) designed to provide scientific evidence to policymakers and other decision-makers in ways that are clear, concise, and actionable. The AAAS EPI Center makes it easier for people to access scientific evidence and information and then integrate that evidence into their decision-making process. AAAS is the world's largest general scientific society with nearly 250 affiliated societies and academies of science and is the publisher of the *Science* family of journals.



United States Environmental Protection Agency

In May of 2021, **EPA** re-launched the Green Infrastructure Federal Collaborative. This cooperative effort fosters engagement and cooperation between agencies that actively work to promote the implementation of green infrastructure. Collaborative members work closely to align knowledge and resources to build capacity for green infrastructure implementation. These coordinated efforts provide a platform to publicize the multiple environmental, economic, and social benefits of green infrastructure. In addition, the collaborative seeks to facilitate strategies that foster climate resilience and encourage the equitable implementation of green infrastructure in all communities.



ECOS

The Environmental Council of the States

The purpose of **ECOS** is to improve the capability of State environmental agencies and their leaders to protect and improve human health and the environment of the United States of America. Our belief is that State government agencies are the keys to delivering environmental protection afforded by both Federal and State law. Further, ECOS provides leadership on environmental issues of national importance, and plays a critical role in facilitating a quality relationship among and between Federal and State agencies.